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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,048	11/18/2003	Jianfeng Chen	LSH-0002	1047

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EXAMINER	
ANTHONY, JOSEPH DAVID	
ART UNIT	**PAPER NUMBER**
1796	

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01/15/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/707,048	CHEN ET AL.	
	Examiner	Art Unit	
	Joseph D. Anthony	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) *10-25* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9 and 26-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

FINAL REJECTION AFTER FILING RCE

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-9 and 26-30 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Trebillon U.S. Patent Number 4,492,682 or or Musselman et al. U.S. Patent Number 5,480,587.

Trebillon teaches the production of ultrafine $Al(OH)_3$ by introducing carbon dioxide gas into a sodium aluminate solution under pressure, which encompasses applicant's disclosed high gravity rotating bed apparatus, to form a gel or gel-like suspension of ultrafine modified $Al(OH)_3$, that can subsequently be filtered and dried and then subjected to other process steps if desired, see abstract and claims of each reference. *Said other process steps are reacting the ultrafine $Al(OH)_3$ with materials*

*such as **oxalic acid** or **oxalate salts**, see column 3, lines 34-57 and claims 11 and 15 of Trebillon.* Applicant's claimed ultrafine oxalic-modified $Al(OH)_3$, and the fire retardant product containing them, are thus deemed to be anticipated over the disclosure of the reference. In the alternative, applicant's claims may differ from applicant's claimed invention in that it is unclear if the ultrafine oxalic-modified $Al(OH)_3$ as disclosed by the applied prior-art reference, actually meet applicant's claimed diffraction Peaks by XRA spectrum at the locations of the listed D values and 20 Angles, since said XRA spectrum data is not directly disclosed by the applied prior-art references. Furthermore, there does not seem to be a direct teaching (i.e. by way of a specific example) to actually making or using an ultrafine oxalic-modified $Al(OH)_3$. In any case, applicant's claims are deemed to be obvious over the reference because the reference teaches the same basic method of making ultrafine modified $Al(OH)_3$ that applicant discloses, and clearly disclose the further reaction of ultrafine $Al(OH)_3$ with oxalic acid or an oxalate salt, to produce an ultrafine oxalic-modified $Al(OH)_3$. As such, it would be well within the skill of the ordinary artisan to make ultrafine oxalic-modified $Al(OH)_3$ that are within applicant's clamed parameters if such is desired.

Musselman et al. directly teaches the use of ultrafine modified $Al(OH)_3$, as fire retardant additives for polymers, see abstract, Figs. 3-5, column 4, lines 22-31 and column 5, lines 25-60. *Please note that Musselman et al directly discloses **oxalic acid** as an effective organic material that may be substituted into the site created by the removal of water of hydration and/or carbonate in the $Al(OH)_3$ thus creating applicant's claimed oxalic-modified aluminium hydroxide ($Al(OH)_3$).* Said ultrafine oxalic-modified

$Al(OH)_3$, additives are deemed to be at once envisaged by one having ordinary skill in the art, and as such, applicant's claims are deemed to be anticipated over Musselman et al.. In the alternative, applicant's claims may differ from applicant's claimed invention in that it is unclear if the ultrafine modified $Al(OH)_3$ as taught by the Musselman et al., actually meet applicant's claimed diffraction Peaks by XRA spectrum at the locations of the listed D values and 20 Angles, since said XRA spectrum data is not directly disclosed by Musselman et al.. Furthermore, there does not seem to be a direct teaching (i.e. by way of a specific example) to actually making or using an ultrafine oxalic-modified $Al(OH)_3$. In any case, applicant's claims are deemed to be obvious over Musselman et al. disclosure since the reference clearly motivates one having ordinary skill in the art to react oxalic acid with untrafine $Al(OH)_3$ to get a ultrafine oxalic-modified $Al(OH)_3$ product.

Response to Arguments

4. Applicant's arguments filed 11/1/07 with the Amendment, have been fully considered but are not persuasive to put the claims in condition for allowance for the reasons set forth above. Additional comments will be set forth next. Applicant's arguments are basically the same as those made by applicant as set forth in the amendment filed with the RCE on 4/3/07. The examiner reiterates his comments, which are set forth below which are deemed to respond to all of applicant's present arguments. The Examiner does want to point out a number of things: 1) Applicant's 1.132 Declaration filed with the RCE on 4/3/07 does not overcome the established

prima facia of obviousness because it does not compare applicant's claimed invention to the closest prior-art which is set forth above., 2) On page 4, lines 9-10 of applicant's Remarks, as set forth in the response filed 11/1/07, applicant asserts that: *"Trebillion expressly states '(f)rom the chemical point of view, the boehmites and pseudo-boehmites obtained by the process of the invention have a molar ratio of H_2O/Al_2O_3 ranging from 1 to 2, which corresponds to all pseudo-boehmites structures... and boehmite structures. . . See col 6 lines 60-65". The clear, express teaching of Trebillon is that the psedudo-behmites structures and boehmite structures do not include oxalic moiety.".* The Examiner is unable to see, from Trebillon's said statement in regards to the molar ratio of water to aluminum hydroxide, how such would lead applicant to the conclusion that: "*The clear, express teaching of Trebillon is that the pseudo-behmites structures and boehmite structures do not include oxalic moiety."* The Examiner asserts that the presence of oxalic moieties on the pseudo-boehmites and/or boehmites made by Trebillon's process are absolutely compatible with Trebillon's stated molar ratio of water to aluminum hydroxide. 3) On page 6, lines 25-26 of applicant's Remarks, as set forth in the 11/1/07 response, applicant makes the assertion, in regards to the applied Trebillon patent that: *"As Applicant have demonstrated in their 132 Declaration, the results products are clearly not equivalent, or even similar."* The Examiner is at lost to find this demonstration is said Declaration since no comparison at all is made between applicant's claimed invention and the invention of Trebillon., and 4) On page 8, lines 27 to page 9, line 2, of the response filed 11/1/07, applicant asserts the following: *"As for Mussleman, it appears that the commercially available ATH is used in the process.*

Musselman does not teach or suggests that the molecular structure of Mussleman has been modified in the process, However, Mussleman discusses removing the water of hydration and filling the void with the substitutent. This appears to be a clear teaching to one having ordinary skill that the structure of Musselman (a commercially available ATH) is unchanged.". Once again the Examiner must disagree. First off, removing water of hydration from a compound is notoriously well known in the art to change both the physical and chemical properties of a compound. Proof of such is everywhere in the chemical arts. As an example, antimony trioxide has a melting point of 655 °C whereas antimony pentoxide has a melting point of only 450 °C., Secondly, there is no reason for one having ordinary skill in the art to presume that applicant's claimed aluminum hydroxide has been structural modified in a way that is distinctive from Musselman's modified aluminum hydroxide which is made by a method of filling the voids, previously occupied by water, with another substitutent, such as oxilic acid. The following comment were made by the Examiner in the previous Office Action and ar repeated here because they are deemed to be highly relevant to the present discussion. Applicant's arguments filed 4/3/07 with the Amendment, RCE and Rule 1.132 Declaration have been fully considered but are not persuasive to put the claims in condition for allowance for the reasons set forth above. Additional examiner comments are set forth next. Applicant's Declaration filed under 37 CFR 1.132 does establish that applicant's claimed invention of an oxalic-modified aluminum hydroxide material is a reaction product of aluminum hydroxide and an oxalic acid. Furthermore, the Declaration does establish that applicant's claimed invention of an oxalic-modified aluminum hydroxide material has a

chemically different structure from pure oxalic acid, pure aluminum hydroxide crystals of the type of gibbsite, nordstrandite and bayerite, and physical admixtures of oxalic acid and aluminum hydroxide crystals.

Nevertheless, said Declaration and applicant's arguments in the "RESPONSE" section of the amendment, do not overcome the outstanding prior-art rejections for the following reasons: The Declaration makes NO direct comparison of applicant's claimed oxalic-modified aluminum hydroxide material with the oxalic-modified aluminum hydroxide materials taught by each of the applied prior-art references. Instead of making such a comparison, applicant basically argues that the boehmites and/or pseudoboehmites materials produced by Trebillon's process have NO oxalic acid chemical combined with the aluminum hydroxide material after the third step of heating the anion containing aluminium hydroxide to a temperature between 90 and 250 °C. *Note: applicant's taught process of making their oxalic-modified aluminum hydroxide materials is one of reacting oxalic acid and aluminum hydroxide at a temperature of at least 100 °C.* Applicant asserts that the X-ray diffraction pattern of the boehmites and/or pseudoboehmites materials produced by Trebillon's process are different from applicant's claimed X-ray diffraction pattern for applicant's claimed oxalic-modified aluminum hydroxide materials. The Examiner is unable from the disclosure of Trebillon to agree with applicant's position, since a side–by-side comparison of data points for the X-ray Diffractions of Trebillon's boehmites and/or pseudoboehmites materials, and applicant's oxalic-modified aluminum hydroxide material, can not be clearly made from the information set forth in the Trebillon patent. The prior-art rejection over the applied

Musselman et al. patent remains for the same basic reasons the prior-art rejection remains over Trebillon remains, namely applicant's failure to establish that the oxalic modified aluminum hydroxide crystals produced by Musselman process have a different chemical structure as compared to those being claimed by applicant.

Conclusion

5. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Examiner Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Joseph D. Anthony whose telephone number is (571) 272-1117. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on (571) 272-1498. The centralized FAX

machine number is (571) 273-8300. All other papers received by FAX will be treated as

Official communications and cannot be immediately handled by the Examiner.

Joseph D. Anthony

Joseph D. Anthony
Primary Patent Examiner
Art Unit 1796

1/9/08